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[54] **INTEGRATED DIGITAL LOOP CARRIER SYSTEM WITH VIRTUAL TRIBUTARY MAPPER CIRCUIT**

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[51] Int. Cl.^{6} **H04J 3/08**

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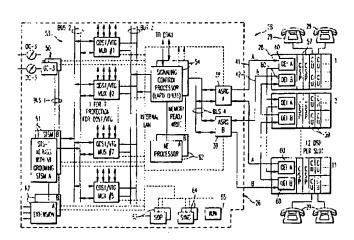
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[57] **ABSTRACT**

An integrated digital loop carrier (IDLC) system includes digital line feeders and signal processors to interface with the feeders and to ultimately provide data to subscriber instruments. The system can be employed as a central office terminal (COT) or remote digital terminal (RDT) with analog, T1 or SONET feeders and any conventional link medium. Data are put in DS1 format and multiplexed onto optical loops for delivery to banks of channel units wherein the optical signals are translated to electrical signals for delivery to the channel units and subscribers. A method and apparatus is provided for mapping and demapping signals between virtual tributaries (VT) and digital signal formats in the RDT of an integrated digital loop carrier. An application-specific circuit provides such mapping and demapping functions as Floating Byte Synchronous VT to Locked Byte Synchronous VT. Floating Asynchronous VT to Locked Byte Synchronous VT. Floating Asynchronous VT to Floating Asynchronous VT. DS1 to Locked Byte Synchronous VT. DS1 to Floating Asynchronous VT, and DS1 to Floating Byte Synchronous VT.

30 Claims, 72 Drawing Sheets